

IN THE CLAIMS:

Please add new claim 9.

REMARKS

Claims 1 through 9 are in the application.

The specification has been amended to provide proper headings pursuant to the guidelines set forth in MPEP 601.

Reconsideration and withdrawal of the rejection of claims 1 to 8 under 35 U.S.C. 102(b) as being anticipated by Matveev "Steel in Transition" taken with Morgoil Bearings website is respectfully requested.

The invention resides in a roll stand for hot-rolling or cold-rolling rolled strips of different materials, wherein

- a) each displaceable roll has at least one hydrodynamic oil film bearing and
- b) a hydraulic unit integrated into each bearing for effecting the axial displacement.

Since these features concern roll stands with paired working rolls, back-up rolls, and (optionally) intermediate rolls, wherein the rolls of at least one roll pair are axially slidable toward both sides, in the case of roll stands with three axially displaceable roll pairs according to feature a) each one of these rolls is provided with at least one hydrodynamic oil film bearing. Feature b) defines for these hydrodynamic oil film bearings that a hydraulic unit is integrated therein which effects the axial displacement. The details of the configuration of this hydraulic unit are defined in the dependent claims.

The cited prior art Matveev "Steel in Translation" is an article relating to cold-rolling of rolled strips and shows in a drawing figure the roll ends of a dual stand with Morgoil bearings at the ends. On the surface, the bearing disclosed in the figure of this prior art reference appears to be very similar to the illustration of the invention but important explanations of the construction, the configuration, and the use of these bearings are lacking in this prior art reference. In Fig. 1, which does not disclose any details of the bearing itself, the following details are mentioned: connection of control hydraulics, position sensor, and central position, but in the corresponding text portion there is only mention of Morgoil bearings enabling axial movement of the rolls. However, this

cannot in any way suggest that **each one** of the axially displaceable rolls is provided with at least one hydrodynamic oil film bearing and that a hydraulic unit is integrated into these bearings for enabling the axial displacement, respectively.

By knowing only the disclosure of Matveev, it remains unclear **where** the hydraulic oil film bearing is to be arranged. Also, there is no disclosure or suggestion in regard to the placement of the hydraulic unit, in particular, its integration, into such bearing for effecting the axial displacement. The presence of such hydraulic unit can be implied only because hydraulic controls are mentioned.

The combination with the secondary reference (Morgoil website) cited in the office action also cannot anticipate the claimed device. The website "Morgoil" describes that such bearings are known in connection with back-up rolls. However, the present invention does not simply relate to the use of such bearings for rolls in roll stands but is directed to the use of such bearings **in all axially movable rolls** and the combination of this type of bearing with a hydraulic unit effecting the axial displacement, respectively. No suggestion or disclosure is provided in this reference in regard to these features.

Claim 1 is therefore not anticipated or obvious in view of the cited prior art.

Reconsideration and withdrawal of the rejection of claims 1 to 8 under 35 U.S.C. 103(a) as being unpatentable over Mercer et al. in view of Salter Jr. is respectfully requested.

The cited prior art reference Mercer et al. discloses a hydraulic adjusting unit for axial movement of working rolls. The hydraulic unit is comprised of a piston loaded by a hydraulic liquid which is pressed against the thrust bearing configuration or axial bearing configuration (roll bearing). This does not suggest the features a) and b) of claim 1 as mentioned above.

Salter, Jr. describes an axial adjusting device for a roll of a roll stand. The moving device is mechanically operated by advancing spindles, gears or the like, wherein an oil film that is present between the sleeve 14 and the bushing 16 at the conical part of the roller neck 4 in the form of a slide bearing enables easy axial movement or axial adjustment without the otherwise necessary great force expenditure so that the entire roll bearing can be of a smaller size. The arrangement of rolls supported in slide bearings mounted in chocks has already been discussed the introductory portion of the instant application in

connection with European patent 0 091 540. Accordingly, this prior art reference only shows the use of an oil film for facilitating mechanical adjustment of rolls and cannot suggest in combination with Mercer et al. the features a) and b) of claim 1.

In summarizing the above, the combination of the cited prior art references do not make obvious the invention as claimed in claim 1 and its dependence claims.

Newly submitted claim 9 is a combination of the features of claims 1 and 2 with an additional feature disclosed on page 5, lines 1-3, of the instant specification: the diameter of the hydraulic unit is only insignificantly greater than the diameter of the bearing shell of the hydrodynamic oil film bearing. Neither one of the cited references discloses the special configuration of the hydraulic unit having an annular cylinder connected to the roll stand, wherein an annular piston with an integrated ring connected to the roll is sealingly guided in the annular cylinder, and wherein the hydraulic unit has a diameter which is only insignificantly greater than a diameter of a bearing shell of the hydrodynamic oil film bearing.

Therefore, in view of the foregoing, it is submitted that this application is now in condition for allowance and such allowance is respectfully solicited.

Any additional fees or charges required at this time in connection with the application may be charged to Patent and Trademark Office Deposit Account No. 11-1835.

Respectfully submitted,

F K K

Friedrich Kueffner
Reg. No. 29,482
317 Madison Avenue
Suite 910
New York, N.Y. 10017
(212) 986-3114

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**Encl.: new claim 9; amended paragraphs of pages 1, 2-3, and 5-6
(clean copies and marked-up version); petition for time extension**

CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231, on August 9, 2002

By: *F K K*
Friedrich Kueffner

Date: August 9, 2002

MARKED-UP VERSION OF 1ST PARAGRAPH OF PAGE 1

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a roll stand for hot-rolling or cold-rolling of rolled strips of different materials, including work rolls, back-up rolls and, optionally, intermediate rolls, wherein the rolls of at least one pair of rolls are axially displaceable toward both sides and have contours suitable for compensating rolling defects.

2. Description of the Related Art

MARKED-UP VERSION OF PARAGRAPH BRIDGING PAGES 2 AND 3

SUMMARY OF THE INVENTION

The invention is based on the object of simplifying the axial displacement of the rolls of a roll stand as compared to the solution with displaceable chocks.

MARKED-UP VERSION OF PARAGRAPH BRIDGING PAGES 5 AND 6

BRIEF DESCRIPTION OF THE DRAWINGS

Further features of the invention result from the following description and the drawing in which an embodiment of the invention is illustrated schematically.

DESCRIPTION OF PREFERRED EMBODIMENTS